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# HANDHELD COMPUTER CONFIGURED FOR ATTACHMENT WITH AN EXTERNAL DEVICE

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

This invention relates to the field of handheld computers. In particular, the invention relates to an attachment mechanism for use in coupling handheld computers to peripheral devices and accessories.

### 2. Description of the Related Art

Handheld computers may include slots for receiving stylus and/or accessory devices. The slots may be used for carrying styluses that can be used to operate the handheld computers. In some handheld computers, the slots may double for purpose of receiving accessory devices.

The slots sometimes enable the spine or stylus being retained therein to jiggle or move about. The accessory devices and stylus may become detached from the handheld computer as a result of the spacing within the accessory device.

Furthermore, some handheld computers require accessory devices, stylus and other peripherals to be inserted into slots for retention. When these devices are inserted into handheld computers, the movement of the devices along the longitudinal axis of the slots may cause the devices to inadvertently jog free of the handheld computer. For example, styluses and other devices may fall from the handheld computer if the handheld computer is held upside down or dropped.

## SUMMARY OF THE INVENTION

Embodiments of the invention provide an attachment mechanism for coupling an external device to a handheld computer. In one embodiment, an external device is equipped with a spine having a deformable layer. The spine is inserted into a device slot of the handheld computer. The deformable layer deforms to enable the handheld computer and accessory device to detachable couple to one another.

In one embodiment, an external device includes a spine having a frictional surface. The spine may be inserted into a slot of the handheld computer so as to bind the frictional surface of the spine to a corresponding surface of the handheld computer.

In another embodiment, a spine of an external device includes a T-shaped cross-section to increase the retention force of the spine within the slot of the handheld computer.

In another embodiment, a handheld computer is provided with a slot for receiving a spine of an external device. The slot may be configured to receive a spine having a rectangular cross-section.

In another embodiment, the slot is configured to receive a flexible spine that can be bent for entrance into the slot. The slot includes an interior structure to receive the spine while supporting the spine from yielding.

In still another embodiment, the slot may be laterally positioned on a surface of the handheld computer and configured to cause a bendable spine to bias as it is inserted into the slot. The bias of the spine is directed towards moving the spine laterally against the handheld computer concurrently with the spine being moved into the slot.

## BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a frontal view of an accessory device including an attachment mechanism, under an embodiment of the invention.

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FIG. 2 is a frontal view of a detachable assembly, including a handheld computer and an accessory device, under an embodiment of the invention.

FIG. 3 is a frontal view of a handheld computer with a cover of the accessory device extending over a front face, under an embodiment of the invention.

FIG. 4 is a rear view of the handheld computer with the cover of the accessory device extending over a rear face, under an embodiment of the invention.

FIG. 5 is a side view of a handheld computer for use with an accessory device, under an embodiment of the invention.

FIG. 6 is a frontal view of a handheld computer incorporating a device slot, under an embodiment of the invention.

FIG. 7 is a side view of a spine for an accessory device, under an embodiment of the invention.

FIG. 8 is a frontal view of the spine, under an embodiment of the invention.

FIG. 9 is an isometric close-up of an end piece for the spine, under an embodiment of the invention.

FIG. 10 is a cross-section of a spine, under an embodiment of the invention.

FIG. 11 is a side-sectional view of the handheld computer retaining a spine of an accessory device, under an embodiment of the invention.

FIG. 12 is a side-sectional view of the handheld computer receiving the spine, under an embodiment of the invention.

FIG. 13 is a top sectional view a handheld computer with a device slot retaining a spine having a rectangular cross-section, under an embodiment of the invention, compared with a circular device slot used in known devices.

## DETAILED DESCRIPTION

### A. Overview

Embodiments of the invention include an attachment mechanism for coupling an external device to a handheld computer. The external device may include an elongated member or spine that can deform to insert and be retained within a slot of a handheld computer. The deformable layer ensures a snug and secure fit. The spine is removable from the slot of the handheld computer. The spine and deformable layer may be integrated or coupled with an accessory device, peripheral device, or stylus that is coupleable with the handheld computer.

An embodiment of the invention includes an attachment mechanism for coupling an external device to a handheld computer. The attachment mechanism includes an elongated member having a deformable layer. The elongated member engages a slot on the handheld computer to detachably couple the external device to the handheld computer. The deformable layer deforms to enable the elongated member to insert and be retained within the slot of the handheld computer.

The term deformable as used herein refers to a characteristic of a member that allows a cross-section of the member to be measurably reduced with a compressive force. Under an embodiment of the invention, a deformable layer compresses to reduce its cross-section by at least 1%.

As used herein, an external device includes a stylus, a peripheral device or an accessory device. An accessory device is an item that adds functionality to the handheld computer. The slot on the handheld computer may include device slots, rails, or openings. The slot may double for receiving an accessory device or a stylus.

One advantage provided under an embodiment of the invention is that an external device coupled to the handheld